

Mallock, as due (in Mr. Mallock's case) to *under-refraction* of rays (as in my case it certainly is due to *over-refraction*), his own experience furnishes a good connecting-link between the "two different, though allied, phenomena." It would be well, however, in order to avoid all uncertainty, that we should know the result, in Mr. Mallock's case, of experiments with an obstacle advanced in front of the eye from a given direction. The experiment with concave or convex spectacles is not quite satisfactory, because it involves a breach of continuity in the observation of the phenomenon.

In concluding that I am "evidently short-sighted," Mr. Backhouse attributes to the whole lens a fault which really belongs only to certain radial portions of the marginal region of the lens. In daylight I see distant objects sharply defined, and that without excessive contraction of the pupil. It is at night, when the pupil is largely dilated and the *marginal* part of the lens becomes exposed to incident rays, that I see radiance around a distant lamp.

These phenomena being necessarily personal to each observer, not admitting of observation by one person for another, and evidently presenting wide differences, it would be interesting to collect and tabulate the facts as described by a number of competent observers. I would suggest that the initiator of this correspondence (Mr. A. Mallock), or some other person, with the approval of the editor of NATURE, should receive and tabulate such facts as may be communicated on this subject, with a view to the publication of the results in a future number of NATURE.

HUBERT AIRY

Blackheath, October 3

An Intra-Mercurial Planet

IF the phenomenon seen by the Hon. F. A. R. Russell was really a transit of this planet, Hofrath Schwabe must have very narrowly escaped witnessing it, for on turning to his MSS. I found the following observation for the date in question:—

"1860, Jan. 29, 9m. (8.11 A.M., G.M.T.).

"Nur die Hauptflecken von 10 deutlich dem Austritte nahe, 11 undeutlich, 12 u. 13 nicht wesentlich verändert."

The numbers refer to the drawing of sun-spots made on the preceding day, indicating also the order in which the spots have appeared since the commencement of the year. No. 10 is a group of spots near the limb, No. 11 a group of very small spots also close to the limb, whilst 12 and 13 are clusters of large spots both of sufficient magnitude to be visible to the naked eye through a fog.

Unfortunately the Photoheliograph was not at work on that day, nor did Carrington make any observations, the sky being cloudy.

G. M. WHIPPLE

Kew Observatory, October 7

Inequality of the Semi-Diurnal Oscillations of Barometric Pressure

WILL you oblige me by publishing the following corrections of certain of the formulæ in my paper on the Inequality of the Semi-Diurnal Oscillations of Barometric Pressure, in NATURE, vol. xiv. p. 316? I regret that the distance of my place of residence has prevented my sending you an earlier notice of the errors.

Formula (2) should stand thus—

$$\tau = V\rho \frac{P}{P} \frac{T}{T} \epsilon,$$

"wherein ρ is the density of air at standard pressure P and temperature T_0 , &c."

The same symbol P should be substituted for P in the next formula, and the explanation should run—

"where s is the hypothetical density of water vapour at P and T_0 , and λ its latent heat at temperature T . Substituting for s its approximate equivalent $\frac{1}{3}\rho$,

$$\tau = V \frac{1}{3}\rho \frac{P}{P} \frac{T}{T} \epsilon."$$

HENRY F. BLANFORD

Meteorological Office, Calcutta, September 5

Miniature Physical Geology

THE occurrence of miniature earth-pillars (vol. xiv. p. 423) is by no means unusual even in our own country.

I noticed some excellent examples some years ago in the

neighbourhood of Halifax. From a steep exposure of alternating strata of sandstone and shales, the sandstone stood out in broad ledges which received on their upper surface the *débris* from the weathering shale, consisting of mud and plate-like fragments of the shale itself. Under the action of the rain this *débris* had been carved out into perfect pillars, each capped with its plate of shale, and with a numerous progeny of smaller pillars clustering round it, each also with its protecting roof of jutting shale.

Near the Mumbles (Swansea) I visited a limestone quarry at the foot of which lay a talus of soft earth embedding a number of fragments of limestone. Here not only were large earth-pillars from two to four inches high, and in every detail of form resembling those of the Tyrol, to be seen sculptured from the talus, but a heavy shower of rain falling at the time was actually at work producing fresh columns and enlarging the old ones. I had with me at the time, by good fortune, a party of some forty students, and was pleased beyond measure to be able to point out to them these beautiful pillars and the process of their growth. So perfect were they that one gentleman more enterprising than the rest wished to transport one fine group to the safe keeping of a glass case.

But the most striking examples of earth-pillars I have seen anywhere occur in this neighbourhood. The trias, which here frequently consists of a breccia of hard sub-angular fragments of various kinds of rocks embedded in a red sandy marl, is in many localities cut through by the roads, and thus exposed in almost vertical faces of considerable length on the side of the roadway. These faces have very generally been carved out into earth-pillars, which, whilst resembling in all else the Botzen pillars, differ from them in remaining attached vertically to the parent rock by one face, and thus are free on three sides only. This ornamentation of the rock-faces in high relief may be seen continuously for many yards, I should think for hundreds, and it is permanent from year to year. No one walking from Dawlish to Little Haldon can fail to be struck with its singular appearance, and it is especially well exhibited on the right hand bank of the road skirting the north-east side of Luscombe grounds. The ordinary earth-pillars, free on all sides, may also be occasionally noticed in great perfection. After last year's heavy rains I saw several measuring 3 inches high and 2 inches broad at the summit: in one case the capping was not of stone, but a piece of growing moss, which had become detached from a mossy bank by a landslip on a small scale.

W. J. SOLLAS

Dawlish, Devons

The Claywater and Meno Meteorites

THE analyses of these remarkable bodies by Dr. J. Lawrence Smith, as given in the *American Journal of Science* for September, 1876, suggest a new and interesting inquiry in astro-meteorology. These analyses gave the following results:—

	Claywater.	Meno.
Stony matter	78.33	77.76
Metallic particles	17.07	18.00
Troilite	4.60	4.24
	100.00	100.00
Stony part, soluble	47.20	48.70
Stony part, insoluble	52.80	51.30
	100.00	100.00
Stony part, analysed as a whole.		
Silica	44.98	44.70
Protoxide of iron and alumina	21.95	22.26
Magnesia	29.30	28.97
Lime	1.80	1.85
Soda	1.32	1.20
	99.35	98.98
Metallic particles.		
Iron	92.15	91.86
Nickel	7.37	7.53
Cobalt28	.13
Copper and phosphorus	Traces of both.	
Specific gravity	3.66	3.65

"In regarding the above comparative statement of the composition of these meteorites," says Dr. Smith, "it will be seen that the compositions of the two as made out by me do not

differ more than those of two fragments of the same meteorite, while they both differ in their *physical aspects* from the ordinary type of meteorites, and, in fact, they have few or no parallels in the collections of these bodies."

Are the above coincidences to be regarded as accidental, or do they indicate an original connection between the two bodies? The former alternative is seen at once to be almost infinitely improbable. But the Meno stone fell in Mecklenburg at noon, October 1, 1861, and the Claywater meteorite, in Wisconsin, at 9 A.M., March 25, 1865, the interval being nearly three years and a half. How, then, could the bodies have been originally connected? It will be observed that the two points of orbital intersection are almost diametrically opposite, and may therefore be regarded as the ascending and descending nodes of the same meteoric group. The possibility of an original intimate connection of the two meteorites becomes thus sufficiently obvious. The nodal points correspond approximately to those of the comet of 1264.

It may here be remarked that a similarity of composition was also found in the aërolites of May 22, 1827, and June 2, 1843, both analysed by Baumhauer.

DANIEL KIRKWOOD

Bloomington, Indiana, U.S.A., September 5.

Comatula rosacea

IN NATURE, vol. viii., p. 469, is a report of an excursion by the Birmingham Natural History and Microscopical Society to Teignmouth, and of the results of its dredging operations in that neighbourhood, in which the following passage occurs:—"By far the most noteworthy capture was *Comatula rosacea*, the Feather-star, two individuals of which were taken in the larval pedunculate condition attached near the base of a frond of *Laminaria*, which was torn off by the dredge. The specimen measured about one-third of an inch in length. Five young *Comatulas* in a free condition, the largest about an inch across, were also taken. A subsequent haul on the following day brought up from the same locality three adults." A foot-note states that this was in the vicinity of Torbay, at a depth of 12 fathoms, on a limestone bottom.

It may perhaps be interesting to the above Society, and to the readers of NATURE generally, to know that during the last month Mr. Hunt and myself, in his handy little sailing-vessel, dredging in Torbay, have taken *Comatulæ*, not by twos and threes, but in the greatest abundance. In one haul off Berry Head there were certainly more than a hundred adults. On this occasion the dredge was brought on board cramfull of the commoner genus, *Ophiocoma rosula*, of which there must have been many thousands, the *Comatulas* forming only a small percentage. This haul was in about 12 fathoms, on a very rocky bottom. We met with pretty similar results close to the Thatched Rock. It is evident that the habitat of *Comatula* is strictly defined, viz., in comparatively deep water and amongst rocks. We have never taken a single specimen from sandy or shelly bottoms.

On examining the few pieces of sea-weed and zoophytes brought up at the same time, they were found to be covered with the young stalked state of the Feather-stars, which were principally attached to *Bugula flabellata* and *Salicornaria farcinoides*. As I write, I have before me a small bottle of spirit and water, in which is a little spray of the latter zoophyte about 2 inches in height, and to which are attached at least seventy specimens in every stage of growth, from the calcareous bud, with its zoophyte-like tentacles, to the perfect, but stalked, form of the Feather-star, with its five bifurcated arms; and on a single microscopical glass slide and cell I have mounted as many as a dozen specimens, all growing on the same small piece of weed.

It is generally stated that both *Comatula* and *Ophiocoma*, on leaving their native element, break themselves into pieces. My experience does not bear this out. It is true that, as they crawled about the deck in their own peculiar fashion, the *Ophiocoma* especially left an occasional arm behind, but as a rule I could take either of them up in the palm of my hand without their exhibiting any suicidal propensities. Presuming on this fact, I put about a hundred of the two sorts into a sponge bag, but this was asking too much of them, for on reaching home and emptying them out, I found that both Feather-stars and Brittle-stars had converted themselves into a mass of mincemeat! It would have been difficult to find a single portion of an arm a quarter of an inch long.

The microscopic study of the structure of the various genera and their organs of locomotion is most interesting, but is beyond the scope of this communication, which is merely intended to

show that *Comatula rosacea* and its young stalked state is not so uncommon as is generally supposed, but can be obtained in considerable numbers, especially if one is so fortunate as to have as a companion such an experienced dredger as my friend, Mr. Hunt.

FRED. H. LANG

Influence of Islands on Colour of Animals

THE September number of *Blackwood's Magazine* contains a narrative by Mrs. Frances Wordsworth and her son, Mr. C. F. Wordsworth, of six months and twenty-two days spent by the survivors of the unfortunate *Strathmore* upon one of the rocks of the Twelve Apostles, an island in the Crozet group.

If I venture to draw attention to the following extracts from their story, it is because they seem to illustrate in a rather remarkable manner some observations upon the influence of islands in determining paleness of colour in animals, which occur in Mr. A. R. Wallace's opening address to the Biological Section of the British Association at Glasgow.

The *Strathmore* was wrecked on July 1, 1875, and speaking of a period four months later, when penguin's eggs had begun to furnish the castaways with ample food, Mr. Wordsworth says: "The eggs did everyone a great deal of good; those who had been haggard and miserable got quite plump and fresh; some of them ate about thirty at a meal, and we now saw each other with clean faces, for we used the eggs as soap; while a most remarkable thing was that every one had fair skins and light hair, dark faces and hair being quite changed, black hair turning brown or red, and fairer people quite flaxen. As for myself my complexion was pink and white, like a girl's" (this after four months' constant exposure to the weather) "with white eyebrows, yellow hair and moustache."

The survivors were rescued on Jan. 21, 1876, and on Feb. 18, Mrs. Wordsworth writes, "Charlie looks well and firm now; his hair had got quite flaxen, which did not suit him at all, but now it has nearly recovered its original colour."

With regard to animal life on the rock, Mr. Wordsworth says: "I had almost forgotten to mention the real owners of the soil. The only unwebbed footed birds on the island, and constant residents, were what we called 'little white thieves,' 'white pigeons,' or 'white crows.' They possessed many of the qualities of our jackdaw, being very inquisitive, mischievous, and hardy, and not to be daunted by trifles."

D. PIDGEON

Holmwood, Putney Hill, September 27

ARE WE DRYING UP?

SUCH is the title of a paper in the September number of the *American Naturalist*, by Prof. J. D. Whitney, the object of which is to bring together some of the more striking facts in regard to the desiccation of the earth's surface—or at least of a considerable portion of it—which has taken place in the most recent geological period, and to suggest the inquiry whether we have any proof that this desiccation has been and is continued into the historical period: in short, Are we drying up?

There is a prevailing popular impression that the countries around the Mediterranean are drier than they were two or three thousand years ago, and that this change is due in part, if not wholly, to the cutting down of the forests which are assumed to have once existed there. Yet, when this matter comes to be investigated, it would appear that there is little if any evidence either that there has been any such wholesale stripping of the wooded lands, or that there has been any considerable change in the climate of that region. It appears to be true, at all events, that exact observations with the rain-gauge have not yet anywhere been kept up for a sufficient time to enable us to speak with certainty with regard to the existence of any secular change in the amount of rain falling at any one place.

We have, however, abundant evidence of a great change over at least a considerable part of the earth's surface in the amount of water distributed in the lakes or running in the rivers, and it can be shown, beyond a doubt, that this change has been taking place within a very recent period, speaking geologically. Some important evidence can also be adduced to the effect that this change has been continued in the historical epoch,